

Nuclear Regulatory Commission

§ 71.20

plutonium-beryllium sources, this general license applies only when, a package is labeled with a transport index not less than the number given by the following equation, where the package contains x grams of uranium-235, y grams of uranium-233, and z grams of the fissile radionuclides of plutonium:

$$\text{Minimum Transport Index} = (0.25x + 0.33y + 0.4z).$$

(2) For a package in which the only fissile material is in the form of encapsulated plutonium-beryllium neutron sources in special form, the transport index based on criticality considerations may be taken as 0.025 times the number of grams of the fissile radionuclides of plutonium.

(3) Packages which have a transport index greater than 10 are not authorized under the general license provisions of this part.

[62 FR 5911, Feb. 10, 1997]

§ 71.20 General license: Fissile material, limited moderator per package.

(a) A general license is issued to any licensee of the Commission to transport fissile material, or to deliver fissile material to a carrier for transport, without complying with the package standards of subparts E and F of this part if the material is shipped in accordance with this section.

(b) The general license applies only to a licensee who has a quality assurance program approved by the Commission as satisfying the provisions of subpart H of this part.

(c) This general license applies only when—

(1) The package contains no more than a Type A quantity of radioactive material;

(2) Neither beryllium nor hydrogenous material enriched in deuterium is present;

(3) The total mass of graphite present does not exceed 7.7 times the total mass of uranium-235 plus plutonium;

(4) Substances having a higher hydrogen density than water (e.g., certain hydrocarbon oils), are not present, except that polyethylene may be used for packing or wrapping;

(5) Uranium-233 is not present, and the amount of plutonium does not ex-

ceed 1 percent of the amount of uranium-235;

(6) The amount of uranium-235 is limited as follows:

(i) If the fissile radionuclides are not uniformly distributed, the maximum amount of uranium-235 per package may not exceed the value given in Table I of this part; or

(ii) If the fissile radionuclides are distributed uniformly (i.e., cannot form a lattice arrangement within the packaging), the maximum amount of uranium-235 per package may not exceed the value given in Table II of this part; and

(7) The transport index of each package, based on criticality considerations, is taken as 10 times the number of grams of uranium-235 in the package divided by the maximum allowable number of grams per package in accordance with Table I or Table II of this part, as applicable.

TABLE I—PERMISSIBLE MASS OF URANIUM-235 PER FISSILE MATERIAL PACKAGE, APPLICABLE TO § 71.20(c)(6)(i)

[Nonuniform distribution]

Uranium enrichment in weight percent of uranium-235 not exceeding	Permissible maximum grams of uranium-235 per package
24	40
20	42
15	45
11	48
10	51
9.5	52
9	54
8.5	55
8	57
7.5	59
7	60
6.5	62
6	65
5.5	68
5	72
4.5	76
4	80
3.5	88
3	100
2.5	120
2	164
1.5	272
1.35	320
1	680
0.92	1,200

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TABLE II—PERMISSIBLE MASS OF URANIUM-235
PER FISSILE MATERIAL PACKAGE, APPLICABLE
TO § 71.20(c)(6)(ii)
[Uniform Distribution]

Uranium enrichment in weight percent of uranium-235 not exceeding	Permissible maximum grams of ura- nium-235 per package
4	84
3.5	92
3	112
2.5	148
2	240
1.5	560
1.35	800

§ 71.22 General license: Fissile mate-
rial, limited quantity, controlled
shipment.

(a) A general license is issued to any licensee of the Commission to transport fissile material, or to deliver

fissile material to a carrier for transport, without complying with the package standards of Subparts E and F of this part, if limited material is shipped in accordance with this section.

(b) The general license applies only to a licensee who has a quality assurance program approved by the Commission as satisfying the provisions of Subpart H of this part.

(c) This general license applies only when a package contains no more than a Type A quantity of radioactive material and no more than 400 g total of the fissile radionuclides of plutonium encapsulated as plutonium-beryllium neutron sources in special form.

(d) This general license applies only when:

(1) The mass of fissile radionuclides in the shipment is limited such that the

$$\frac{\text{grams of uranium} - 235}{X} + \frac{\text{grams of other fissile material}}{Y} \leq 1$$

where X and Y are the mass defined in the table following paragraph (d)(2) of this section; or

(2) the encapsulated plutonium-beryllium neutron sources are in special

form and the total mass of fissile radionuclides in the shipment does not exceed 2500 g.

PERMISSIBLE MASS LIMITS FOR SHIPMENTS OF FISSILE MATERIAL

Fissile material	Fissile material mass (g) mixed with substances having a hy- drogen density less than or equal to water	Fissile material mass (g) mixed with substances having a hy- drogen density greater than water
Uranium-235(X)	500	290
Other fissile material(Y)	300	180

(e) Except for the beryllium contained within the special form plutonium-beryllium sources authorized in paragraphs (c) and (d) of this section, this general license applies only when beryllium, graphite or hydrogenous material enriched in deuterium is not present in quantities exceeding 0.1% of the fissile material mass.

(f) This general license applies only when shipment of these packages is made under procedures specifically authorized by DOT, in accordance with 49 CFR Part 173 of its regulations, to prevent loading, transport, or storage of these packages with other fissile material shipments.